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EXAMINER				
BEST, ZACHARY P				
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/511,997

Applicant(s)

KNIGHT ET AL.

Examiner

Zachary Best

Art Unit

4191

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 October 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-19 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 14 October 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-8508)
Paper No(s)/Mail Date 10142004
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

**BATTERY WITH VIBRATION-RESISTANT JOINT BETWEEN
POSITIVE ELECTRODE AND CURRENT CARRYING STRAP**

Examiner: Z. Best S.N. 10/511,997 Art Unit: 4191 March 25, 2008

Specification

1. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. **It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited.** The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-11 and 14-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hasegawa et al. (U.S. Patent No. 5,607,797 A) in view of Nakano (JP 10-144269 A).

Regarding Claim 1, Hasegawa et al. teach a method of manufacturing a battery comprising providing a cell for a battery having alternative positive and negative electrode plates (2, 3), each of the positive and negative electrode plates being separated by an electrically insulative separator layer (4), the positive and negative electrode plates being in overlying relationship (fig. 1), wherein each of the positive electrode plates includes a projecting tab extending from an adjacent upper portion thereof (5, fig. 1), the projecting tabs of the positive plates being generally aligned (fig. 1), and wherein each of the negative electrode plates includes a projecting tab (5, fig. 1), the projecting tabs of the negative plates being generally aligned (fig. 1); attaching a conducting connecting strap to the projecting tabs of the positive electrode plates (6), applying a cap material (10) to the upper portions of the positive plates, and allowing the cap material to harden to provide a cap attached to the upper portions of the positive plates (col. 4, lines 59-64). However, Hasegawa et al. fail to teach said cap material covering portions of the projecting tabs.

Nakano teach a method of manufacturing a battery comprising alternating positive and negative electrode plates (P, N, fig. 8), each plate having a projecting tab being generally aligned with the same type of tab (p, n, fig. 4), attaching a conductive connecting strap to the

projecting tabs (PS, NS, fig. 6), and applying a cap material to portions of the projecting tabs (5, G), and allowing the cap material to harden to provide a cap attached to the projecting tabs (paragraph 3). Nakano teach that it is advantageous to use the cap material to reinforce the area around the projecting tabs and connecting strap (paragraph 3 and paragraph 5). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to create the method of manufacturing a battery of Hasegawa et al. with the step of adding cap material to the projecting tabs because Nakano teach improved reinforcement of the area around the projecting tabs and connecting strap.

Regarding Claim 2, Hasegawa et al. teach the cap coats upper portions of the positive electrode plates (10, fig. 1), and Nakano teach the cap coats the projecting tabs (5, fig. 6). Further, because the cap coats the portions it will inherently prevent gas from reaching the coated portions (i.e., oxidation). A reference that is silent about a claimed invention's features is inherently anticipatory if the missing feature is necessarily present in that which is described in the reference. *In re Robertson*, 49 USPQ2d 1949.

Regarding Claim 3, Hasegawa et al. and Nakano separately teach the cap is a rigidifying structure unifying the coated portions the cap covers (fig. 2 and fig. 6, respectively).

Regarding Claim 4, Hasegawa et al. and Nakano separately teach the method of manufacturing a battery is a lead-acid battery (abstract and paragraph 1, respectively). Therefore, because the respective inventions are for lead-acid batteries the plates will inherently be formed of lead-based materials. A reference that is silent about a claimed

invention's features is inherently anticipatory if the missing feature is necessarily present in that which is described in the reference. *In re Robertson*, 49 USPQ2d 1949.

Regarding Claim 5, Hasegawa et al. teach the step of inserting the cell in a housing after the attaching step (col. 8, lines 21-37).

Regarding Claim 6, Hasegawa et al. teach the step of adding electrolytic solution to the cell after the applying step (col. 6, lines 21-25).

Regarding Claim 7, Hasegawa et al. teach the applying step comprises applying the cap material and allowing the cap material to spread and drip to the exposed adjacent portions of the positive plates (col. 5, lines 2-13).

Regarding Claim 8, Hasegawa et al. and Nakano separately teach the cap material comprises an adhesive resin (col. 6, lines 4-8 and paragraph 3, respectively).

Regarding Claim 9, Hasegawa et al. teach the adhesive resin is an epoxy resin (col. 6, lines 4-8).

Regarding Claim 10, Hasegawa et al. teach the importance of the viscosity of the cap material during the process of manufacturing the battery (col. 4, lines 59 – col. 5, line 13). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to adjust the viscosity of the cap material because Hasegawa et al. recognize the importance of viscosity on the application step of manufacturing the battery. Discovery of an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2d 272 (CCPA 1980).

Regarding Claim 11, Hasegawa et al. and Nakano separately teach the positive and negative electrode plates are substantially planar (fig. 1 and fig. 6, respectively).

Regarding Claim 14, Hasegawa et al. teach a battery comprising a housing (8), a plurality of alternating positive and negative electrode plates (2, 3), each of the positive and negative electrode plates being separated by an electrically insulative separator layer (4), the positive and negative electrode plates being in overlying relationship and positioned in the housing (fig. 1), wherein each of the positive electrode plates includes a projecting tab extending from an adjacent upper portion thereof (5, fig. 1), the projecting tabs of the positive plates being generally aligned (fig. 1), and wherein each of the negative electrode plates includes a projecting tab (5, fig. 1), the projecting tabs of the negative plates being generally aligned (fig. 1); a conductive connecting strap attached to the projecting tabs of the positive electrode plates (6), a conductive connecting strap attached to the projecting tabs of the negative plates (6), a cap covering portions of the positive plates (10). However, Hasegawa et al. fail to teach said cap material covering portions of the projecting tabs.

Nakano teach a battery comprising housing (12), a plurality of alternating positive and negative electrode plates (P, N, fig. 8), each plate having a projecting tab being generally aligned with the same type of tab (p, n, fig. 4), attaching a conductive connecting strap to the projecting tabs (PS, NS, fig. 6), and applying a cap material to portions of the projecting tabs (5, G), and allowing the cap material to harden to provide a cap attached to the projecting tabs (paragraph 3). Nakano teach that it is advantageous to use the cap material to reinforce the area around the projecting tabs and connecting strap (paragraph 3 and paragraph 5).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to create the method of manufacturing a battery of Hasegawa et al. with the step of adding cap material to the projecting tabs because Nakano teach improved reinforcement of the area around the projecting tabs and connecting strap.

Regarding Claim 15, Hasegawa et al. and Nakano separately teach the cap material comprises an adhesive resin (col. 6, lines 4-8 and paragraph 3, respectively).

Regarding Claim 16, Hasegawa et al. teach the adhesive resin is an epoxy (col. 6, lines 4-8).

Regarding Claim 17, Hasegawa et al. and Nakano separately teach the method of manufacturing a battery is a lead-acid battery (abstract and paragraph 1, respectively). Therefore, because the respective inventions are for lead-acid batteries the plates will inherently be formed of lead-based materials. A reference that is silent about a claimed invention's features is inherently anticipatory if the missing feature is necessarily present in that which is described in the reference. *In re Robertson*, 49 USPQ2d 1949.

Regarding Claim 18, Hasegawa et al. teach the projecting tabs and adjacent upper portions of the negative electrode plates are void of a cap (fig. 1).

Regarding Claim 19, Hasegawa et al. teach an electrolyte solution contained in the housing (col. 6, lines 21-25).

4. Claims 12-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hasegawa et al. in view of Nakano, as applied to Claims 1-11 and 14-19, and further in view

of Hull et al. (U.S. Patent No. 3,802,488 A).

Regarding Claim 12, Hasegawa et al. and Nakano teach method of manufacturing a battery as recited in Paragraph 3 above. However, Hasegawa et al. and Nakano fail to teach the step of attaching the connecting strap by dipping the tabs in a mold.

Hull et al. teach a method of manufacturing a connecting strap to battery plates to be used in lead-acid batteries (col. 1, lines 16-21) comprising the step of attaching the connecting step comprises dipping the projecting tabs of the electrode plates in a conductive molten solution captured in a mold, and allowing the molten solution to freeze into a connecting strap within which the projecting tabs are embedded (col. 10, lines 18-38). It is advantageous to use the method of Hull et al. because of, among other things, the improved positioning of the plates within each cell assembly (col. 1, line 53 - col. 2, line 2). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to use the method of manufacturing a battery as taught by Hasegawa et al. and Nakano where the step of attaching the connecting strap comprises dipping the projecting tabs of the electrode plates in a conductive molten solution captured in a mold, and allowing the molten solution to freeze into a connecting strap within which the projecting tabs are embedded because Hull et al. teach that improved positioning of the plates within each cell is achieved by this step.

Regarding Claim 13, Hull et al. teach the conductive molten solution comprises a lead-based material (col. 9, lines 41-42).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Zachary Best whose telephone number is (571) 270-3963. The examiner can normally be reached on Monday to Thursday, 7:30 - 5:00 (EST).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dah-Wei Yuan can be reached on (571) 272-1295. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

zpb

/Dah-Wei D. Yuan/
Supervisory Patent Examiner, Art Unit 4191